Headlines: Singapore's Best And Brightest Honoured At NSTA Dinner
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Singapore's best and brightest honoured at NSTA dinner

By **DIONDI TAN**

SEVENTEEN of Singapore's best and brightest received awards from Trade and Industry Minister Lim Hng Kiang yesterday at the Singapore 2008 National Science and Technology Awards (NSTA) presentation dinner.

Among other honours, two National Science and Technology Medals (NST Medal) were presented to Tan Chorh Chuan and Say Kwee Teck.

The NST Medal is given to people who have made an exceptional contribution and played a strategic role in the development of Singapore through promotion and management of R&D. Nobel Prize winner Sydney Brenner was the last recipient, in 2006.

Prof Tan, acting president of NUS and deputy chairman of the A*STAR, got the NST Medal for his contribution to the development of Singapore's scientific capability, particularly in the biomedical sector.

Mr Say, senior vice-president for research and development engineering at Seagate Technologies International, set up Seagate's first – and Singapore's only – disk drive R&D facility in 1984, grew the centre into a world-class facility employing roughly 300 researchers and engineers, and has churned out hundreds of inventions, trade secrets and patents.

Dr Yong: *His team is in talks about licensing their liquid-forging technique*

Mohan Balasubramanian, from the NUS Department of Biological Sciences, won the National Science Award for research into unravelling the mechanisms that control the division of eukaryotic cells.

Christian Kurtsiefer, Valerio Scarani and Antia Lamas-Linares, from the NUS Department of Physics, received the National Science Award for cutting-edge theoretical and experimental studies on quantum entanglement.

Two teams won National Technology Awards. From the Institute of Microelectronics, Patrick Lo Guo-Qiang, Narayanan Balasubramanian, Navab Singh and Ajay Agarwal were commended for pioneering research on new transistors and bio-sensors based on silicon nanowires. From the Singapore Institute of Manufacturing Technology, John Yong Ming Shyan, Steven Tong Kin Kong, Chua Beng Wah and Ho Meng Kwong were awarded for developing a liquid forging technique for manufacturing high-strength steel components.

There were three recipients of the Young Scientist Award: the Institute of Chemical and Engineering Sciences' David Chen, Wang Hongyan of Duke-NUS Graduate Medical School and Liu Bin from NUS.

Of the two NTA winners, both teams have gone ahead with commercialisation of their ideas.

Prof Yong's team is in talks with a major metal press manufacturer and component fabricators about licensing the team's liquid-forging technique, which is 50 per cent-plus more efficient than either casting or cold-forging, wasting lesser material, energy and time. It can also create components with shapes and features that no other technique can, and produces higher-quality, stronger steel than is usually achieved through casting.

The target market are manufacturers who want to create one-piece parts that conventional methods are unable to produce. These include heatsinks with large fins, which generally require many parts and steps to make.

Dr Lo's team has come up with a technique to make five nanometre-wide – 20,000 times narrower than a human hair – super-sensitive transistors out of silicon, which can be used for bio-sensors, such as to detect disease markers in blood. The nanowires can also create new, more efficient computer chips because of their unique vertical structure.

Dr Lo compares his nanowires to current technology "as HDB flats to a bungalow – you can fit more into a smaller space by going vertical." Technology R&D company Unisantis Electronics Japan has been working with Dr Lo's team to create 3D computer chips that may be 10 times faster than current chips.